the microscope the samples of the dust which fell in 1812 and 1902 differed greatly, the 1812 dust being much finer and containing very few mineral crystals, being chiefly composed of fragments of dark brown volcanic glass. During the recent fall it was noticed that the ash at first was rather coarse and of a brownish colour, then it became slightly redder, while the final deposits consisted of a whitish-grey impalpable powder.

From a meteorological standpoint the conveyance of the dust from St. Vincent to Barbados is a subject of great interest, as bearing upon the question of the upper currents. At sea level the trade wind blows almost directly, and freshly, from Barbados to St. Vincent, east to west. The Soufrière became active early in the afternoon of Wednesday, May 7; the dust cloud must have been shot up to an elevation of some miles, where it was caught by a west to east counter current of great velocity, for within two hours, 3.15 p.m., dust was observed to be descending in Barbados, gradually increasing in volume and becoming heavy soon after sundown, the consequent darkness being intense. There was brilliant lightning and violent crashing thunder. It would appear that on this day the upper current had an east-going velocity of more than fifty miles an hour.

It is worthy of mention that at 1.30 p.m. on May 7 there occurred a sudden outburst from one of the oil borings, 900 feet deep, at Turner's Hall, Barbados, dust being thrown up to the height of more than 100 feet into the air. At 3.45 p.m. there was an unusually high tide at Bridgetown, the highest within memory.

Seismographic Records in France.[1]

I received, on May 6, a telegram from M. Kilian, professor of geology at the University of Grenoble, announcing that the Kilian-Paulin seismograph had registered in the morning at 3h. 4m. 49s. Paris time a seismic shock from a north-east direction. The evening papers and those of the next day announced that this shock had been felt again in the north-west of France and along the south Mediterranean coast of Spain. It is in the district of Murthia that the most violent effects were notified.

Another more precise observation as regards time and direction of the shocks has been recorded at Floirac near Bordeaux, north-west direction, time 3h. 5m. 30s.; the passage of the vibrations therefore made themselves felt at Floirac forty-one seconds after those of Grenoble. In supposing them to have a speed of 3 km. a second, the epicentrum must be 123 km. further from Floirac than from Grenoble and also to the south-east of Floirac, to the south-west of Grenoble. These theoretical and hypothetical considerations would place it in the Mediterranean, to the east of Murthia, to the south of Minorca. Wherever it is, it seems to me that the earthquake of May 6 affected the subsidence in a Mediterranean oval, which has cut the south coast of Spain, by marking it with volcanic eruptions (Olot, Columbret, Cartagena, Cap de Gâte). It is interesting to remark that it is equally the result of a subsidence in a Mediterranean oval, that of the Lesser Antilles, that two days after, May 8, there was the terrible catastrophe of Saint-Pierre.

NOTES.

AT the next meeting of the British Association, to be held at Belfast, commencing on September 8, it has been decided to include in Section A a subsection for seismology. The organising committee of this subsection invite cooperation of seismologists, who, it is hoped, if they are not able to attend will be able to send communications for discussion.

A REUTER telegram from Upsala says that a Swedish expedition for taking meridian measurements will leave Tromsö for Spitsbergen on July 26. It will be under the leadership of Dr. P. Rubin and will include, as astronomer, Dr. von Zeipel, and, as cartographer, Lieutenant Duner. The expedition will have as a centre the seven islands to the north of Spitsbergen, and will return to Tromsö on September 10.

MR. J. S. BUDGETT, Balfour student of the University of Cambridge, left England last week for Uganda, *viâ* Mombasa, on a mission from the Zoological Society of London. He will proceed to the south-east corner of the protectorate, and take up a station on the Semliki River, where he will collect mammals and birds, study the fishes, and endeavour to investigate the habits of the okapi in the forest of Mboga. Mr. Budgett, who has already paid two visits to the Gambia, is a practised collector of fishes and an experienced African traveller.

AT the anniversary meeting of the Royal Agricultural Society, held last week, the Prince of Wales was elected president of the Society for the year following the Carlisle meeting this summer.

THE *British Medical Journal* announces that a scientific commission, consisting of Dr. G. C. Low, Dr. C. Christy and Dr. Castelani has been sent to Uganda by the Royal Society for the purpose of investigating sleeping sickness. To Dr. Low and Dr. Christy is entrusted the parasitological part of the investigation, while Dr. Castelani is the bacteriologist of the expedition.

WE learn from the *Victorian Naturalist* that after an absence of rather more than twelve months, the greater part of which was spent among the aboriginals of the northern interior of Australia, Prof. Baldwin Spencer, F.R.S., and Mr. F. J. Gillen returned to Melbourne on March 17. They were in excellent health, and were welcomed home by a number of gentlemen prominent in literary and scientific circles. The explorers have brought back a considerable amount of material, including phonograph and kinematograph records, on which to base an extensive work on the myths, customs, &c., of the various tribes studied.

THE *Times* states that Mr. W. Bruce, who is to lead the Scottish Antarctic expedition, has received intimation, dated January 4, from Prof. von Drygalski, leader of the German South Polar expedition, announcing the arrival of the *Gauss* at Kerguelen. The expedition will, therefore, have made the ice at about the same time as the Swedish and British ships. Von Drygalski has penetrated the Antarctic region at the point of the still hypothetical termination island in order to discover the western side of Victoria land and clear up its possible connection with Kemp and Enderby lands. By taking this route he believes he may be ultimately able to sweep westwards by a high southern latitude into the South Atlantic and emerge by way of South Georgia.

A CORRESPONDENT directs our attention to the announcement that a very fine example of the blue Puya is in flower in the Mexican portion of the temperate house at Kew Gardens, where it is now bearing two stout spikes, three feet high, of beautiful peacock-blue flowers. The plant is a very remarkable one and has rarely flowered in this country, though Messrs. J. Veitch had one in flower in 1868 (*Botanical Magazine*, t. 5732).

THE International Commission for Scientific Ballooning met in Berlin last week in the Sitzungssaal of the Reichstag. We learn from the *Daily Graphic* that Prince Frederick Henry presided in the name of the Kaiser. The War Offices of all the great European Powers except France were represented at the conference. The object of the commission is to combine the study of meteorology with aëronautics, and to induce the various Powers to agree upon some common course of action with regard to the study of aëronautic questions. A paper was read by Mr. Patrick Alexander on the steering by Hertzian waves of flying machines carrying instruments for registering the temperature and moisture of the atmosphere at different altitudes. Mr. Alexander claims that his machines can be sent a distance of fifty miles and steered back to the starting point. The foreign deputies, who were the guests of the aëronautical battalion of the German Army, were shown over the headquarters of the battalion, which has the largest balloon house in the world.

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[1] Translation of a note by M. Michel Lévy in the *Comptes rendus* of the Paris Academy of Sciences, May 12.

THE anniversary meeting of the Royal Geographical Society was held on Monday, and the medals and awards already announced (vol. lxv., p. 471) were distributed. In his opening address, the president referred at some length to the Antarctic expedition, and remarked that they could not hope to receive any news of the *Discovery* until the spring of next year. The question of wintering was left to Captain Scott's discretion, and he was instructed to use his utmost endeavour to explore the region within reach of his winter quarters by sledge travelling in the spring. He intended to endeavour to reach and force through the ice pack on the 175th meridian, and on reaching the open water to make for Cape Adare. The relief ship would have no difficulty in finding the *Discovery* and supplying her with the stores and provisions of which she would be in need if the winter quarters were in Wood Bay or on any part of the coast between that position and Cape Crozier. About 20,000*l.* had been subscribed for the relief expedition, but at least 22,000*l.* would be needed. Turning to the opposite Polar area, the president remarked that the Arctic regions were the scene of the labours of four expeditions. The *Windward* would shortly proceed to Smith Sound to bring back the Peary expedition. Captain Sverdrup in the *Fram* had now been absent three winters, and his exact position was unknown. There were also Mr. Baldwin's expedition with the avowed object of reaching the North Pole by the Franz Josef Land route, and Baron Toll's expedition in the islands to the north of the new Siberian Islands.

THE Nature-Study Exhibition, to be opened at the Gardens of the Royal Botanic Society in Regent's Park on July 23, promises to be of a very interesting and instructive character. The exhibits will be arranged in five groups, the scope of which may be roughly defined as follows:—(1) General information, such as reports and other publications, object-lessons and notes on school gardens, natural history rambles, &c.; (2) pictorial illustrations, including pictures and photographs of work and equipment in school and out; (3) organisation, with schemes of instruction and time-tables; (4) apparatus, including models, specimens, maps and collections of natural objects; (5) work done by pupils, such as notes of observations, nesting-boxes, breeding-cages, &c. The intention is to bring together, so far as possible, the results of nature-study in schools and colleges of all grades, so that teachers and pupils may be given the opportunity of seeing what others are doing, and so obtain inspiration for the further development of their work. University colleges, natural history societies and local museums might usefully affect the trend of nature-study by showing typical collections, or materials and apparatus suitable for study in various branches of natural history in schools. A report will be published, and the following have kindly consented to act as judges:—Mr. A. D. Hall, principal South-Eastern Agricultural College, Wye, Prof. C. Lloyd Morgan, F.R.S., Prof. L. C. Miall, F.R.S., Prof. J. Arthur Thompson and Prof. R. Wallace. The scheme has so far extended beyond the scope originally contemplated that further donations are invited and would be gratefully received by the hon. treasurer, Mr. C. S. Roundell, 7 Sussex Square, Brighton. All particulars may be obtained from the hon. secretary, Mr. J. C. Medd, Stratton, Cirencester.

THE *Times* announces the death of Dr. Henry Morton, president of the Stevens Institute of Technology. Dr. Morton was born in New York, December 11, 1836, and graduated from the University of Pennsylvania in 1857. The bent of his studies was then fixed by the fact that he took a post-graduate course in chemistry. He afterwards became secretary of the Franklin Institute of Philadelphia, where he delivered many lectures which attracted much attention. In 1868 he was the chief of an expedition organised to observe and make photographic records of a very notable total eclipse of the sun. In 1870, the Stevens Institute of Technology was organised and its work begun at Hoboken in New Jersey. This was done under the will of Edwin A. Stevens, who had designated Dr. Morton as the president of an institute to be devoted entirely to the higher instruction in technological subjects. Dr. Morton was one of the most proficient of the engineering experts known to America. He lavished his large income upon the institute with great freedom. In 1880 he made his first gift, which took the form of a new workshop fitted up with steam engines and tools. Two years later he gave money for the purchase of electrical apparatus. In 1888 he gave 10,000 dollars for the endowment of a chair of engineering practice, to which, in 1892, he added 20,000 dollars more. For many years he had contributed the whole of his salary as professor of applied electricity to electrical experiments. In all, his gifts to the institute have amounted to about 145,000 dollars. A few years ago he interested Mr. Andrew Carnegie in the work, with the result that Mr. Carnegie contributed a laboratory and endowed it in addition with 100,000 dollars. Dr. Morton was for several years a member of the United States Lighthouse Board and had been a member of the National Academy of Sciences for nearly thirty years.

MR. JOHN BELLOWS, who died on May 5, aged seventy-one, was a well-known member of the Society of Friends, and a printer at Gloucester. He was an active member of the Cotteswold Naturalists' Field Club, and had communicated to its *Proceedings* several papers on local archæology. In one paper he dealt elaborately with the history of the "Speech House" in the Forest of Dean, and endeavoured to show that in the Court still held in that house we have the last vestige of the grand system of the Druids in Britain.

IN connection with the Belgian Royal Academy, a number of prizes are offered for this and next year of which particulars are given in No. 3 of the *Bulletin de la Classe des Sciences*. In mathematical and physical sciences the subjects announced for 1902 relate to critical phenomena, viscosity of liquids, the algebraic and geometric study of n-linear forms where $n > 3$, and the thermal conductivity of liquids and solutions, the prize in each case being 600 francs, also prizes of 800 francs for researches on the action of alcohols on compound ethers and on the unipolar induction of Weber. In natural science, prizes of 600 francs are offered for a study of the beds of Comblain au Pont and their geological position, the modifications produced in minerals by pressure, the development of the Platoda, the effects of osmotic pressure on the phenomena of animal life, and the Devonian flora of Belgium. For researches on the influence of external factors on karyokinesis and vegetable cell division a prize of 800 francs is offered, and for new investigations on the formation of albuminoids in plants a prize of 1000 francs. In every case the essays, written in French or Flemish, must be sent in by August 1. For 1903 the subjects propounded in mathematical and physical sciences are the combinations of the four halogens among themselves, the form of the principal terms introduced by the earth's elasticity into the equations for the nutation in obliquity and longitude, contributions to the study of mixed forms containing any number of series of variables with applications to the geometry of any space, and the determination in altitude and azimuth of the principal terms in the periodic deviations of the vertical on the hypothesis of the non-coincidence of the centres of mass of the earth's crust and its nucleus. In natural science the subjects are the physiological function of albuminoids in the nutrition of animals or plants, the organisation and development of a Phoronis, and the relations between this genus and Rhabdopleura and Cephalodiscus and the group of Enteropneustes, a description of the elements and their sulphides and binary compounds occurring in Belgian soils, new researches on the different strata included between the "Bruxellian" and "Tongrian" in Brabant, and a determination of the geological age of certain deposits of sand, plastic clay and quartz pebbles in the Oligocene formations the positions of which are indicated by reference to the geological maps. The values of these prizes range from 600 to 1000 francs.

In addition to the above prizes, a prize of 1400 francs associated with the name of Charles Lemaire is offered for questions relating to public works. A prize, named the Édouard Mailly prize, of 1000 francs is offered to the Belgian or naturalised subject who makes the greatest advance in promoting the study of astronomy in Belgium, a Louis Melsens prize is offered for work on chemistry or applied physics and a Charles Lagrange prize for a mathematical or experimental investigation relating to our *mathematical* knowledge of the earth, the word mathematical in this sense excluding purely statistical measurements unless associated with the investigation of some new law. Finally, a prize founded by Baron Selys Longchamps is offered for the best original work dealing with the whole or part of the Belgian fauna, not necessarily the recent fauna.

Having regard to the wide reputation which the Malays have earned for themselves as a maritime people in Eastern seas, it is at first sight not a little remarkable that, so far as the Malay Peninsula is concerned, they have developed no really able type of sea-going boat. Three main factors have been at work influencing the development of boats, and tending to produce the characteristic shallow draft, lack of beam, and a consequent want of stability and weather lines. (1) The rivers are protected by very shallow bars of sand or mud, which make it impossible for a deep-bodied boat to obtain shelter within them. (2) The variable character of the light breezes prevailing in the Straits of Malacca. (3) The great strength of the tides. The lot of the sailing vessel is thus precarious; racing tides and baffling winds and calms make progress very slow. Hence propulsion by oars or paddles was the first necessity of the old-time Malay seaman in the Straits; sails were merely an occasional convenience. The Malay boat, however large and with its quantity of top-hamper, always remains essentially a canoe. Those who are interested in the subject of transport by water will find an important paper on boats and boat-building in the Malay Peninsula, by Mr. H. Warington Smyth, in the *Journal* of the Society of Arts, vol. l. p. 570.

In *Symons's Meteorological Magazine* for May, attention is drawn to the use of the rainfall tables published each month. The British rainfall organisation established by the late Mr. Symons has been very successful in obtaining the voluntary assistance of some thousands of observers, and it is well known that the results are very carefully collated and published in an annual volume, "British Rainfall." It is, perhaps, not so generally known that in the monthly magazine the rainfall values for some 156 stations are regularly published, so as to give prompt and accurate information as to the state of the British Islands as regards rainfall in the previous month. For forty-five of the stations the departures from the averages for the ten years 1890-99 and also the number of rainy days are shown. In the current issue a table is given showing the aggregate rainfall of the first four months of this year and the averages of the same period, for ten years, at more than fifty stations distributed as uniformly as possible over the country. A glance at this table shows that the south-eastern portion of England has been very dry; within a radius of fifty miles from London the fall has only exceeded two-thirds of the average at London itself. With regard to large districts, the actual state is perhaps more readily seen from the *Weekly Weather Report* of the Meteorological Office, which shows that for the four months in question the rainfall has only exceeded the average in the north of Scotland and the north of Ireland; in the east of Scotland, and the east and south of England, the deficiency exceeded two inches, while in the south-west of England it exceeded three and a half inches.

The Meteorological Office pilot chart of the North Atlantic and Mediterranean for June shows that down to the middle of May no reports of ice about the Newfoundland banks had been received, a newspaper report of a berg having been seen in a locality much frequented by shipping not being confirmed. Of interest in connection with the exceptionally prolonged spell of cold weather over the British Isles is the statement that during April there was much Polar ice blocking the north and east coasts of Iceland, the region from which the prevailing winds have recently been drawn. In a note on sandstorms it is suggested that the dust which fell in the south-west of England and South Wales late in January last may have come from a sandstorm which had been observed at Ouargla, in the Sahara, on the 16th of the month, falls of sand being reported on succeeding days about the Canaries, Madeira, Portugal, the north-west of France, and finally on our side of the Channel on the 22nd and 23rd. Curiously enough, on the 17th and 18th, when brisk easterly winds were carrying dust from Africa to the Canaries, a westerly wind, strong to a gale, was driving clouds of sand across the Gulf of Suez and the upper part of the Red Sea. From a total of 3200 observations of the temperature of the North Atlantic during the month of March, it is found that, compared with February, the changes were very irregular, the mean values in several localities, chiefly between 30° and 40° N., showing a decline. A strip of very cold water extended southward from the extremity of the Newfoundland bank down to the forty-first parallel, several records being as low as 32° to 35°. To the south-westward of the British Isles the mean values differed but slightly from the average, while the air over the land showed an excess of 2° or 3°.

The third and last part of the sale catalogue of the library of the late Prof. A. Milne-Edwards, of which a copy has been sent us, contains the works on invertebrates. The total number of lots catalogued in the three parts is 2881.

According to its report for the year 1901, the Rugby School Natural History Society is in an unusually flourishing condition. A large collection of invertebrates has been purchased, and the museum has been added to and improved in other ways. A satisfactory feature is the attention devoted to agricultural science, the attendance at the meetings of that section exceeding all the rest in numbers.

In the course of an article on animal sense perceptions, in which special attention is directed to nauseous or offensive odours as a means of protection, the editor of *The Zoologist*, in the May issue, warns his readers against regarding animal etiology too much from the human standpoint. Because animals cannot speak, we must not assume that they have no modes of communication; it is by no means certain that the ordinary explanation of "warning colours" is the true one, while the evil smell of the durian fruit does not render it distasteful either to the orang or to man himself. To the same journal Mr. G. Renshaw contributes an interesting article on mammals in captivity.

The auditory organs of the so-called "waltzing mice" of Japan and China form the subject of a paper by Dr. K. Kishi in part iii. of vol. lxxi. of *Zeitschrift für wissenschaftliche Zoologie.*

Although these remarkable mice are commonly called either Japanese or Chinese, it appears that their real home is China, since they are known in Japan as Nanking mice. In Japan, where there were originally a grey and a white breed, these mice are kept in cages on account of their well-known dancing propensities. After an exhaustive examination of their internal auditory organs, the author comes to the conclusion that the dancing of these mice is not due, as commonly supposed, to disease of the labyrinth, but to the effect of confinement for untold centuries in small cages.

The German scientific periodical *Die Natur* has been discontinued as a separate publication, and is now combined with the *Naturwissenschaftliche Wochenschrift*, edited by Prof. H. Potonié and Dr. F. Koerber and published by Gustav Fischer, Jena.

Mr. F. Howard Collins has compiled from Admiralty sources a collection of tables showing "the magnetic direction and neap and spring rates for every hour of the tidal streams at forty-eight localities alphabetically arranged between the Nore and Scilly Isles." The latitude, longitude and characteristics of each light are stated, and under them are given particulars as to directions and rates of neap and spring tides. The tables are published by Mr. J. D. Potter at two shillings.

The simple experiments in "Mensuration, Hydrostatics and Heat" given by Mr. G. H. Wyatt in the little book published under that title as one of Messrs. Rivingtons' Handbooks of Practical Science, should be familiar to every schoolboy. The book has now reached a third edition, and contains a course of practical work which can be done with profit by boys in the lower forms of schools. Not only do exercises of this kind develop delicacy of manipulation and minute attention to details in the pupils, but they are also of decided value in connection with other branches of school work.

The additions to the Zoological Society's Gardens during the past week include a Chimpanzee (*Anthropopithecus troglodytes*) from the Gold Coast, presented by Captain Daniel A. Donovan; an Illiger's Macaw (*Ara maracana*) from Brazil, presented by the Countess of Malmesbury; a Common Kingfisher (*Alcedo ispida*) British, presented by Mr. J. F. Smith; a Hocheur Monkey (*Cercopithecus nictitans*) from West Africa, deposited; three White-throated Capuchins (*Cebus hypoleucus*) from Central America, a Humboldt's Lagothrix (*Lagothrix humboldti*) from the Upper Amazons, purchased; a Burrhel Wild Sheep (*Ovis burrhel*), a Japanese Deer (*Cervus sika*) born in the Gardens.

OUR ASTRONOMICAL COLUMN.

Astronomical Occurrences in June:—

June 2. 15h. 1m. to 15h. 54m. Moon occults 54 Ceti (mag. 5·8).
2. 19h. 0m. Venus in conjunction with moon. Venus 2° 44′ S.
5. 11h. 58m. to 15h. 40m. Transit of Jupiter's Sat. III.
9. Saturn. Outer minor axis of outer ring = 15″·41.
10. 16h. 0m. Uranus in opposition to the sun.
12. 15h. 37m. to 19h. 20m. Transit of Jupiter's Sat. III.
14. 23h. 36m. Moon in conjunction with α Virginis (mag. 1·2).
15. 10h. 15m. to 11h. 31m. Moon occults 86 Virginis (mag. 6·0).
15. Venus. Illuminated portion of disc = 0·711. Mars = 0·989.
18. 9h. 37m. to 10h. 59m. Moon occults ν Scorpii (mag. 4·5).
22. 23h. Saturn in conjunction with moon. Saturn 5° 11′ S.
June 24. Vesta situated 21′ south of Saturn.
24. 17h. Jupiter in conjunction with moon. Jupiter 5° 54′ S.
26. 12h. 25m. Minimum of Algol (β Persei).
29. 9h. 14m. Minimum of Algol (β Persei).

New Algol Variable.—*Circular* No. 65 from the Harvard College Observatory announces the detection of a new variable on the photographs obtained there. An examination of a plate taken on April 3, 1902, for the possible presence of comet *a* 1902 showed that as compared with a plate of the same region obtained on March 7, 1900, the star + 43°·4101 was abnormally bright. This star is a double, and it is the north preceding component which shows the variability. The position is

$$\left.\begin{array}{l}\text{R.A.} = 21\text{h. } 55\text{m.}\cdot 2\\ \text{Decl.} = +\,43^\circ\ 52'\end{array}\right\}(1900).$$

More detailed examination showed that the star was generally bright and constant in light, so that it must be of the Algol type. It is not very distant from the remarkable variable SS Cygni, which precedes it 16m. and is 44′ south.

The variable is shown at full brightness (about 8·9 magnitude) on 388 plates taken between 1889 and 1902, and on 19 it is shown as fainter than 9·3 mag. The period appears to be about 31·304 days. On plotting the light curve from the data obtained it appears that the star retains its full brightness for 28 days. About one day before the minimum it commences to diminish, attaining the magnitude 11·5 at 0d. ·43 before minimum. The light then remains constant for more than half a day, with the minimum magnitude 11·6. The time of increase is more uncertain, but apparently is nearly the same as that of decrease. The times of the last minimum, with predicted future ones, are as below:—

	Minima.		
	h.	m.	
1902 April 28	21	33	G.M.T.
May 30	4	51	
June 30	12	8	
July 31	19	26	
Sept. 1	2	44	
Oct. 2	10	2	

COAST FOG SIGNALS.

When lighthouse lights and all other seamarks are obscured by fog, sound is the only medium by which warning signals can be conveyed to mariners. It has been thought that it might be possible to transmit such signals by means of etheric vibrations; but assuming such intercommunication were established, it would fail in two most essential requirements for assisting the mariner in foggy weather, as it would not give him any information as to the direction from which the warning message came, nor would it tell him how far distant the signalling station was. Further developments may in the course of time remedy these defects, but from present-day knowledge and experience it cannot be said that etheric vibrations are available for fog-signal purposes at sea. In a paper recently read before the Society of Arts, Mr. E. Price Edwards discusses the present position of this question of sound signals and gives some interesting particulars of the trials carried out at St. Catherine's Point, in the Isle of Wight, last summer. From this it appears that for many years past sound-producing instruments of various kinds have been employed for uttering warning sounds at points of danger on our coasts, and that constant efforts have been made to develop instruments yielding sounds of great loudness and penetrating power, so as to overcome the numerous obstructive influences affecting the propagation of sound through the atmosphere. The instrument which has proved most effectual for this purpose is the siren, sounded by means of air forced through it at a pressure of about 40 lb. on the square inch. It is used in the form of a double cylinder, one cylinder fixed, the other (inside it) rotating, each cylinder having longitudinal slits corresponding in number and area, through which, as often as they coincide, the air passes. In the trials at St. Catherine's, two flat circular discs with radial slits were tried, with very satisfactory results; but this arrangement involves a separate motor to rotate the movable disc, whereas the rotation of the cylinder siren is effected by the air pressure which produces the sound. It is considered that some loss of power and a more or less defective blast result from the